A HITCHCOCK PUBLICATION

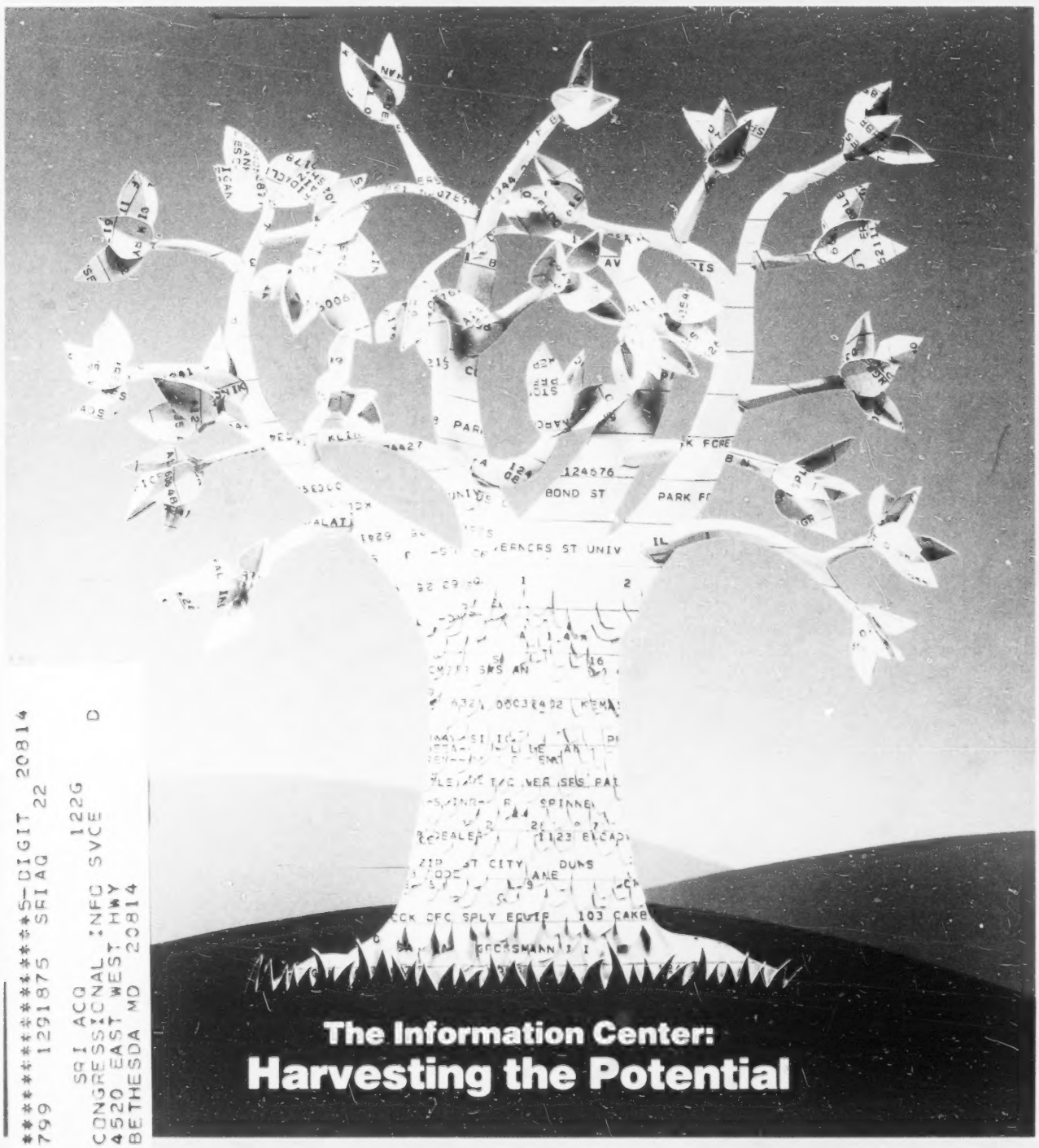
November 1985

INFOSYSTEMS

Administering Contracts & Managing Vendors

Modem/Multiplexer Roundup • The Software Generation Gap

Testing Application Software



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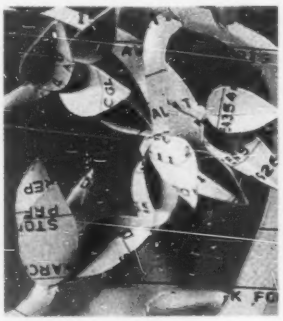
INFOSYSTEMS
THE MAGAZINE FOR INFORMATION SYSTEMS MANAGEMENT

ISSN 0364-5533

November 1985 Volume 32 Number 11



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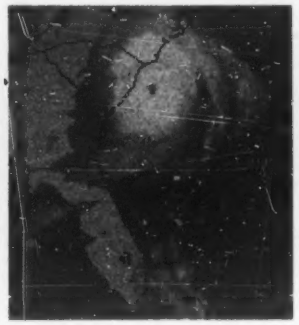

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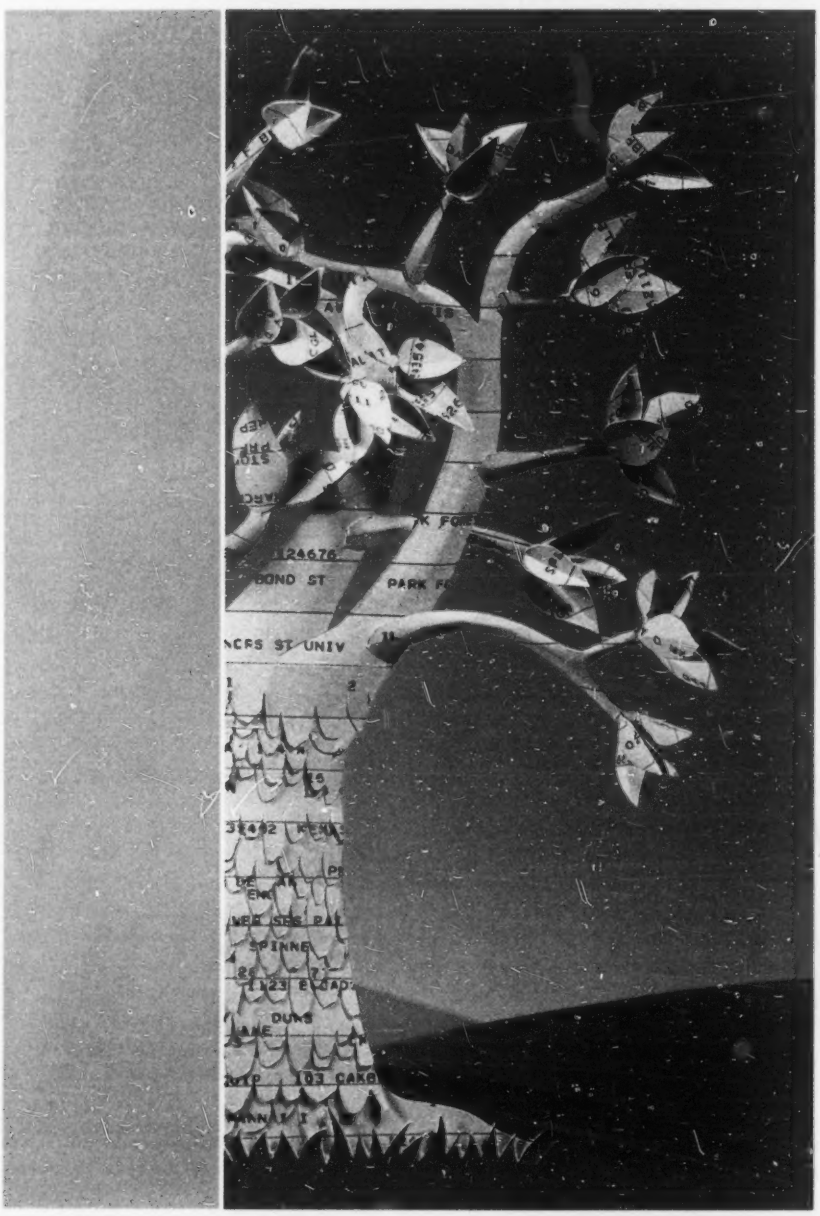
The Information Center: HARVESTING THE POTENTIAL

Expectations of what an information center can accomplish vary with audience, staffing of the center, and software and hardware tools available.



By Wayne L. Rhodes Jr.
Editor & Publisher

Since its introduction nearly a decade ago, the concept of the information center has been put forth repeatedly as a possible solution to some of the problems related with corporate computing. Among these problems, of course, were the applications backlog of data processing (DP) departments and the computer illiteracy of non-DP professionals. The concept itself was infrequently tested, however, until the personal computer (PC) and a spreadsheet program known as VisiCalc came together. Their marriage and the subsequent birth of many end-user computer products quickly boosted the information center from concept to reality.

According to some recent surveys, the information center has barely reached adolescence in most organizations, although almost everyone seems to have one now. The surveys found that expectations of what an information center can accomplish vary with audience, staffing of the center, and available software and hardware tools.

This article looks at the state of the information center in 1985, analyzing its role as a vehicle for harvesting the potential computers bring to organizations. There is some speculation on what this promising adolescent might grow to become. The most popular hardware and software products will be looked at, along with how some of these are being employed.

A feel for the dynamism of the information center in practice may be drawn from the Second Crwth Information Center Survey. According to Crwth's Bibi Garcia, while the first survey elicited responses from 169 organizations, the second survey attracted the partici-

pation of 1,080 companies. A recent report by the American Management Assn. concluded that 80 percent of billion-dollar companies had information centers; one-third of them were established within the past year. The Diebold Group, a New York City-based management consulting firm, reported that at the end of 1984, 80 percent of respondents to its survey had information centers. This contrasts to only 67 percent a year earlier.

But these information centers are not yet firmly rooted in the organizations that have established them. According to *Information Center* magazine, a lot of people are working with the DP equivalent of hand-me-downs. "The information center might have a great deal of purchasing authority [either explicit or de facto] where micros or software are concerned," reports Editor Floyd Kemske, "but when it comes to the big machines, it has as much influence as you would expect a young, barely established department to have." Kemske points out that although every organization comes by its machinery in its own way, there is a common denominator: "The information center is never first in line for money or memory."

Research conducted this summer by Hitchcock Research Services on behalf of INFOSYSTEMS further underscored the fledgling nature of the information center in organizations. Over 45 percent of those surveyed said that microcomputers are used as standalone processors, neither communicating with each other nor with a mainframe computer. Just under 10 percent said they had micros communicating with each other.

This contrasts dramatically with the opinion respondents have of where the information center will be in five years. Nearly 90 percent said they believe their information centers will have mainframe and microcomputers communicating. None believe they will have standalone, noncommunicating microcomputers as their primary mode of operation in five years.

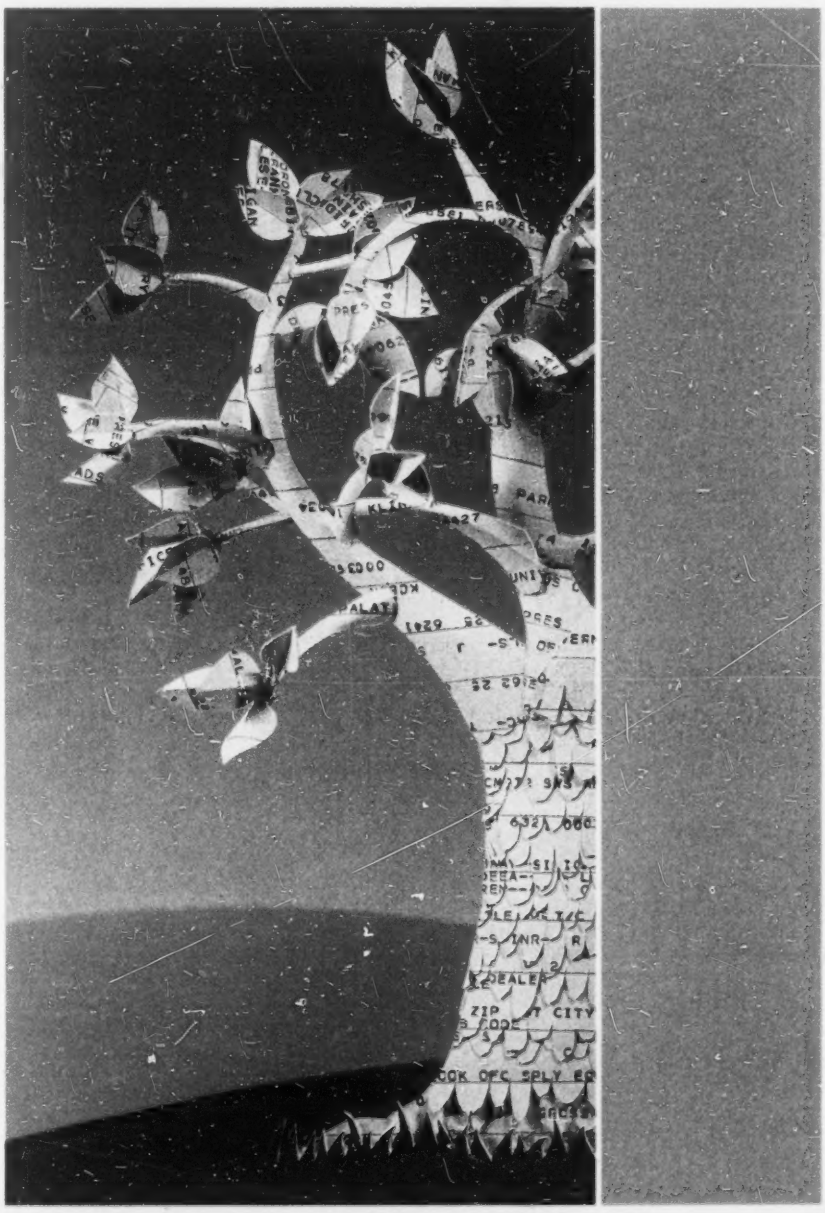
Virtually all the research says the primary purpose of the information center is to educate the computer illiterate. "When end users can process routine information efficiently, the first goal of the information center is realized," Garcia says. "But basic information processing is just the first step. The next step is for end users to utilize the information for decision making." To harvest the potential, in other words.

While DP backlog was cited as one impetus to instituting an information center, Crwth's survey revealed that few organizations have actually experienced a reduction. "The information center is generally credited for reducing the 'invisible backlog'—that is, the jobs that are never even submitted to the data processing department due to the anticipated delay," Garcia says.

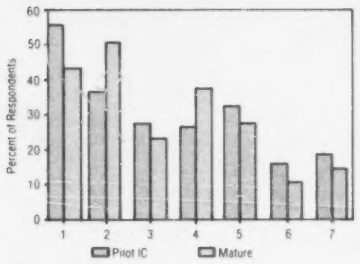
The information center is typically set up as a department under the director of management information systems (MIS), according to Crwth. The second most common arrangement has it reporting to the manager of systems and planning. Crwth believes this arrangement helps to dissipate hostility while encouraging a cooperative atmosphere between information center staff and systems personnel. Ironically, one of the benefits Crwth cited for the information center is that end users appreciate DP's role in the company and its contribution to their jobs.

Computer Intelligence Corp. (CIC) reports similar findings to those of Crwth. The market research firm surveyed 370 architecture (IBM/PCM mainframe) information center managers. CIC says it was not surprised to learn that most information centers (86 percent) report to the data processing organization. Because all MIS notations (11 percent of the total) were write-in responses, CIC claims that there is some confusion in terminology. A more detailed examination of this phenomenon did not uncover any pattern to respondents' notation of MIS instead of opting for the DP answer provided.

CIC finds that a wide variety of users have access to the information center. Ninety-five percent of the respondents

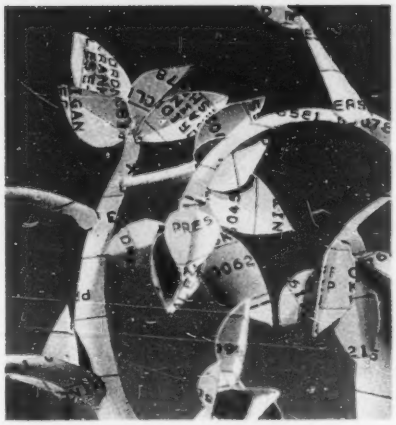


Information Center Obstacles

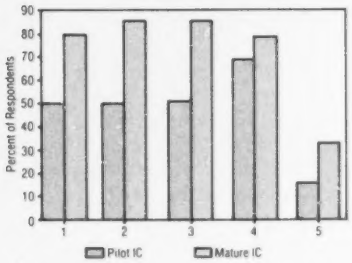


Key
1. Lack of end user awareness
2. Shortage of DP trainers
3. DP resistance
4. Management resistance
5. CPU shortage
6. Insufficient DASD space
7. Lack of chargeback system

Source: The Second Crwth Info Center Survey



Information Center Benefits



Key
1. Improved computer literacy
2. Increased job productivity
3. Improved use of information
4. Improved DP/end user relations
5. Reduction of DP backlog

Source: The Second Crwth Info Center Survey

stated that business (corporate) management or staff professionals were served by the center. A majority of the sites also noted suppport of clerical staff (70 percent) and DP staff (66 percent). The other category included sales or marketing staff, remote offices and, in a few instances, support of student populations in educational environments.

Successful implementation of an information center is not easy. Crwth says the foremost obstacle is a lack of DP trainers. "During the pilot stage, the high teacher-to-student ratio tends to obscure this problem," Garcia explains. "But of the more mature information centers, over half judged the trainer shortage to pose a serious threat."

The breadth and diversity of information-center-oriented products further aggravates the training issue, according to Crwth. For instance, Crwth lists 22 different mainframe products that have had some success in penetrating information centers, and names eight microcomputer products as leaders.

"Each package, such as SAS, will be used very differently by each end user," Garcia points out. "For example, a clerk may use it for word processing, an engineer for statistical studies, and a business analyst for graphic presentations. None will want to learn the entire package.

"The training dilemma is further aggravated by the fact that these tools are often as new to experienced DP professionals as they are to novice end users."

INFOSYSTEMS asked what functions were necessary to support end-user computing through an information center. Crwth asked what services were necessary. Between the two sets of research, you get a pretty clear idea of how comprehensive the concept has become even in its infancy.

Besides training, the most frequently mentioned support services included providing access to mainframe-based data files, graphics facilities and fourth-generation language programming; analyzing end-user requirements; demonstrating hardware and software; and providing a hotline for end users.

As far as the types of hardware in use, respondents to the INFOSYSTEMS survey were heavy users of IBM or compatible microcomputers; 53 percent said a minicomputer was involved and over 40 percent mentioned an IBM mainframe. Over a quarter of the respondents said they have non-IBM-compatible microcomputers while just under a quarter of them said non-IBM mainframes are involved. Nearly 90 percent said their information center is or will be handled by existing corporate mainframes, and 71 percent said they would not require an operating system that is different from the one used in daily DP functions.

The top eight microcomputer software products in use, according to Crwth's research, are the following: Lotus Development's 1-2-3 and Symphony; Ashton-Tate's dBase II and III, and Framework; Micropro's Wordstar; and VisiCorp's VisiCalc.

The leading mainframe-oriented software products, again as reported by Crwth, are: IBM's ADRS II, ISPF, CMS, GDDM, JCL, PROFS, APL/DI, QBE, Information Center 1 and AS; Pansophic Systems' Easytrieve Plus; Evaluation & Planning Systems' FCS; Martin Marietta's Ramis; Informatics' Answer/DB; Execucom's IFPS; ISSCo's Tell-A-Graf; Information Builders' Focus; Infodata's Inquire; D&B Computing's Nomad; and SAS Institute's SAS, SAS/FSP, SAS/Graph and SAS/OR. (IN)

For more information on the 1985 Crwth Information Center Survey, enter No. 136 on the Reader Information Card.

Software: MAKING THE INFO CENTER TICK

By Jan Snyders
Senior Editor

The information center is conceived of in three different ways: as a centralized room for computing, as a departmental computing environment, and simply as a system used by company employees. Regardless of how it is set up, there is a wide variety of software available for running the information center. Since the software runs on both mainframes and minicomputers, use of a data base management system (DBMS) and/or micro-to-mainframe software will usually be required.

As a rule, the information center as a centralized computing room is used mostly for training. Some companies, however, set up an information center as an alternative to putting individual terminals or personal computers (PCs) on every worker's desk. Instead, employees can go to the center to develop reports and spreadsheets, and to do word processing.

Let's look at information center software individually. The report writer has been referred to as a fourth-generation

language, a data base management system and an information center aid. Under any circumstance, report writers are designed for ease of use by non-data-processing personnel. These packages, which allow data to be retrieved from the central processor, relieve programmers of developing one-time reports for users.

A report-producing program can be executed at a terminal in a few minutes by a user with little experience. Some report writers are dictionary-based, with technical information about the data contained in the dictionary. Based on the contents of the dictionary, the system formats and validates data automatically. Most report writers use tutorials which reduce the need for the user to understand the data base, dictionary and so on. Many of the systems are menu-driven, enabling information to be selected and summarized directly from the data base.

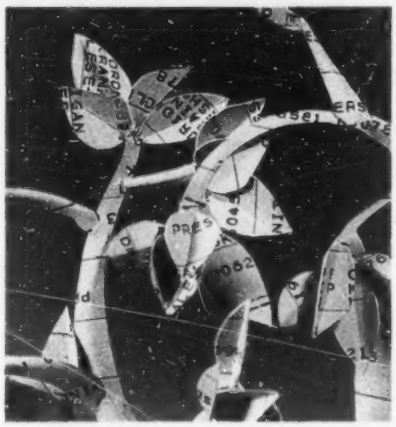
Spreadsheets on the mainframe became popular with the introduction of the PC. Most spreadsheet packages provide computerized assistance in planning, forecasting, budgeting and data analysis. Split-screen capabilities allow users to work with multiple segments of the worksheet simultaneously. In the information center, spreadsheet programs should enable users to combine data from several departments into corporate reports. Some packages support PC files, allowing the mainframe to load and save micro-generated spreadsheets.

Word-processing software is usually found in a specified word-processing center. Many companies install word processors in an information center for use by secretaries with complex formatting requirements or managers who need to complete letters with multiple revisions. The major features of word processors are that information can be added, deleted and moved without retyping an entire document.

With most packages, the user specifies the type of document (such as business letter, personal letter, memo, report or envelope) and the system automatically adjusts margins, vertical spacing, justification, tabbing, document length and printing style.

When the information center is in a departmental context, it includes all the types of software discussed above, but usually also will include application generators, decision-support packages and graphics. There is also a greater emphasis on security. Specific applications software is also included for accounting, personnel and human resource management.

Although many application generators are designed for people with some programming knowledge, there are several for use by the inexperienced. Application

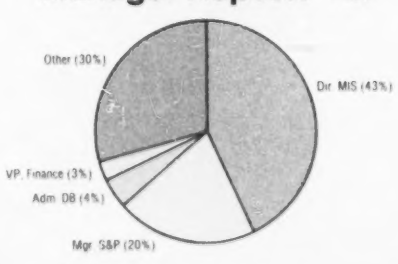


generators can create complete applications for all areas of business. Guidance from a systems analyst is usually required. In the information center environment, these packages should be menu-driven, fill-in-the-blank systems providing on-line query and update functions in English-like language. Some of the functions of an application generator are describing a file and data record, screen formatting, editing of attributes, and the creation of menus and user documentation screens. When choosing an application generator, take into consideration whether it will be used by a systems analyst or end user.

Of all the management tools used in the information center, decision-support systems are the most common. These systems make managers' jobs easier. They are used for analysis of sales, cost and profits, budgets, and forecast modeling. With them, "what-if" questions can be answered. While there are many vendors providing decision-support software, it is necessary to determine whether a system works alone or requires a DBMS, data dictionary, report writer and so on, before it is used.

Hand in hand with decision-support systems is graphics. Managers no longer want to peruse rows and rows of figures to make a decision. Graphic presentation is much more convenient. Data can be shown in pie, bar or line charts that can

Information Center Manager Reports To:



Source: The Second Crwth Info Center Survey

be scanned easily. These can be intermixed on a single form. One of the major benefits of using graphics is that they are noticed.

In the departmental information center, users are now able to enter data in specific categories such as accounting, finance, personnel and manufacturing. Software packages are designed for these departments for ease of use by clerical workers as well as management. However, this presents a major security problem. The more users have access to data, the tighter security must be.

Most software security packages require an administrator. A typical user profile might include details of applications the user can access, statements allowed in the programs and systems commands that can be executed. An application profile might include specific times the application can be executed, initial transaction invoked when a user logs onto the application, and a list of the users allowed to access it. Each terminal can also have a security code.

The primary theory behind the information center is that users throughout the company will have access to all data. Managers are realizing that data is not something that belongs to the data processing department alone. It is a resource to be used by all.

No information center can operate without a DBMS, micro-to-mainframe software and fourth-generation languages. A DBMS integrates data files into a data base and provides different views to different users. Because data is defined independently of any of the application programs, there is a layer of insulation between programs and the data itself. Data can't be changed without affecting a program. The DBMS also provides multiuser support so that multiple users can get at the same data at the same time.

Relational DBMSs provide automatic navigation through the data base. That means that one can specify what one wants without knowing how it is obtained. Relational DBMSs also have a very high-level language capability. Retrieval, update, insert and delete capabilities are provided.

A DBMS consists of several major components: a data manipulation language, a data description language, query and report generators, an applications programming language (which is part of the data manipulation language), and a data communications interface as well as physical implementation and utilities. The data description language explains the structure of the DBMS and how it will look. The data manipulation language is used in writing applications.

While the DBMS's function is to provide language, space management and

data organization, above that is a larger umbrella: the data dictionary. Since the DBMS stores so much data, a data dictionary is usually essential. The dictionary is useful in the operation and control of the information system and in the design of new applications where users need access to data.

DBMS integration is now considered to be very important. Since problem-solving in most organizations cuts across many functional links, data must be shared. Since it is rare that any business function is self-contained and independent of others, it is important that data be standardized, consistent and stored in one repository.

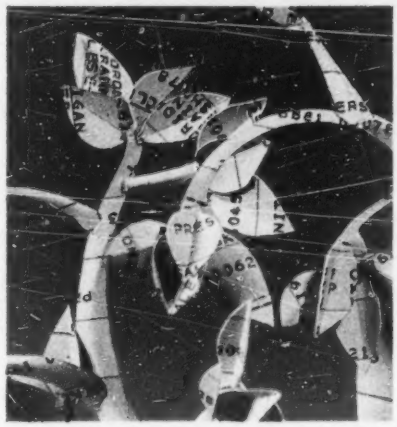
To use the data in the DBMS in the information center, a micro/mainframe connection is almost always necessary. Today there are three types of micro/mainframe software connections. First, users can get information from the computer, manipulate it on their PCs and use the results for their own benefit. The second type of connection allows users to call in information from the mainframe, make changes and then send it back to the mainframe. Changes are held in a "bucket" and made in a batch mode later in the day. Finally, with an on-line, real-time connection, users are in direct communication with the mainframe.

Most data processing (DP) staff are nervous about PC users having direct on-line access. Others, however, believe it is a way to get end users "off their back" since they become self-sufficient in terms of information retrieval. Still others want users to go beyond information retrieval and actually define their application requirements.

There are two ways to design a micro/mainframe system: from the standpoint of the end user who wants to access data, and from the standpoint of the management information systems director or DP manager—perhaps the most logical method. Although DP managers want to make the system easy for end users, they are concerned about security, controls and data integrity. An important requirement is that a system be generic. That is, programs such as VisiCalc, Lotus 1-2-3, dBase II and Symphony should be able to be downloaded without requiring different links. Making sure all users have the same data is another concern.

Along with the DBMS and micro/mainframe software, it is necessary to have user-friendly software, currently referred to as fourth-generation languages (4GLs).

The whole approach of 4GLs is to get closer to users, allowing them to program or talk to the computer in terms of what they want. It is, however, advantageous to have a language that can also be

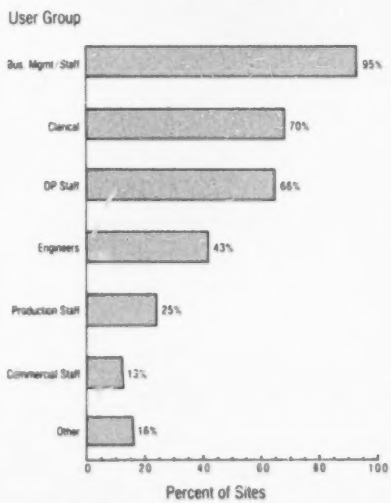


used by programmers to develop complete applications.

Most 4GLs can be categorized according to whether they were developed by a DBMS or non-DBMS vendor; whether they are formal or informal, procedural or nonprocedural, batch or on-line; and whether they are for use by professional or nonprofessional users.

There are basically two camps of 4GL suppliers: those that offer products that serve as a primary data base for managing corporate data and those that do not. Companies such as ADR, Princeton, NJ; Cullinet, Westwood, MA; Cincom, Cincinnati, OH; and Software AG, Reston, VA, offer primary data base products. Other products such as Focus from Information Builders, New York City; Ramis II from Martin Marietta, Princeton, NJ; and Nomad 2 from D & B Computing, Wilton, CT, are not recognized as primary data base products be-

Type of Users Served by Info Center



Source: Computer Intelligence Corp. Info. Center Survey

cause organizations don't use them to manage corporate data. Instead, these companies have developed languages that allow the products to support other data base systems. The main thrust of the non-DBMS vendor is toward the information center. The 4GLs from DBMS vendors, on the other hand, are targeted more for mainstream application development by DP staff.

The idea of DBMS vendor vs. non-DBMS vendor gets a bit more complex if you break the languages into formal and informal. Basically, the older 4GLs seem to be more informal and nonprocedural. Users can get a lot of processing done just by coding one or two lines. These languages tend to be a bit cryptic and subject to shorthand ways of doing things. Although designed for limited types of work, they do it very fast and powerfully and allow less naive end users to do some data processing on their own. Almost all non-DBMS vendors provide informal languages.

There are many other tools provided to increase the productivity of the information center. Some companies have specifically combined a number of products into information center packages. ADR's system includes Dataquery and Datareporter for ad hoc queries and reports; Empire for decision support; Email and ETC for office automation; Ideal for application development; and Roscoe/ETSO for application support.

Cincom's TIS/XA provides a relational DBMS, 4GL application development, business control manufacturing and financial applications, decision support tools, and network management. Computer Corp. of America, Cambridge, MA, combines Access/204, a language-free decision-support query and writing system; PC/204, a micro-to-mainframe link that downloads corporate data for automatic spreadsheet definition and creation on IBM PCs; and Developer, a personal data base manager.

SAS Institute, Cary, NC, combines its base SAS software, an all-purpose data management, analysis and report writing tool; SAS/FSP, an information processing system that gives full-screen interactive data entry; SAS/AF, an interactive facility with menus and screens for application development; SAS/Graph for color graphics; and its PC software.

The information center is different things to different users and companies. Although it will be many years before users will no longer have to rely on the DP center, with the aid of software from a multitude of vendors, individuals will have greater ability to satisfy their own information needs. (IN)

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